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Search Results -

Term	Documents
GZU-$	0
GZU-$	0
UZU-?-N	0
UZU-?-N	0
(GZU-$ OR UZU-?-N).USPT,JPAB,EPAB,DWPI,TDBD.	0
(GZU-$ OR UZU-?-N).USPT,JPAB,EPAB,DWPI,TDBD.	0

Database: US Patents Full-Text Database; US Pre-Grant Publication Full-Text Database; JPO Abstracts Database; EPO Abstracts Database; Derwent World Patents Index; IBM Technical Disclosure Bulletins

Search: L40

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Search History

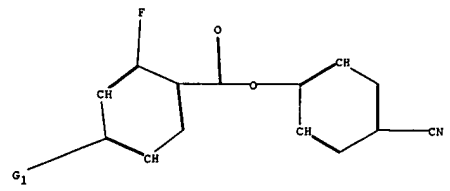
DATE: Monday, September 02, 2002 Printable Copy Create Case

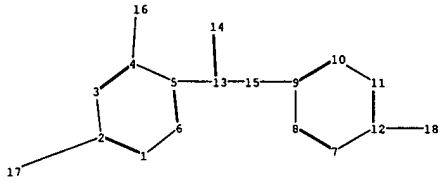
Set Name side by side	Query	Hit Count	Set Name result set
DB=USPT,JPAB,EPAB,DWPI,TDBD; PLUR=YES; OP=ADJ			
L40	gzu-$ or uzu-?-N	0	L40
L39	us-5156763-$.did. or us-5334327-$.did. or jp-09157654-$.did.	5	L39
L38	l4 with polyimide	49	L38
L37	l34 and alignment layer	2	L37
L36	L34 and alingment layer	0	L36
L35	L34 and thickness	2	L35
L34	US-4974940-$.did.	2	L34

L33	US -4974940-$.did.	0	L33
L32	l26 and alignment layer	0	L32
L31	l26 and thickness	2	L31
L30	Ll3 and thickness	18	L30
L29	l22 and l15 and twist angle and l4	7	L29
L28	L26 and l4	0	L28
L27	L26 and thickness	2	L27
L26	us-5188758-$.did. or us-4799774-$.did.	3	L26
L25	L24 and l23	4	L25
L24	L22 same twist angle	730	L24
L23	L22 same l15	23	L23
L22	liquid crystal$ layer	19872	L22
L21	L20 and stn	1	L21
L20	us-5578241-$.did.	2	L20
L19	l17 and stn	8	L19
L18	L17 and twist angle	8	L18
L17	L15 and l4	13	L17
L16	L15 and l7	2	L16
L15	surface tilt angle	252	L15
L14	L13 and stn	16	L14
L13	L2 and l4	38	L13
L12	l2 same l4	5	L12
L11	L10 and alignment layer	70	L11
L10	l2 and stn	143	L10
L9	L8 and twist angle	1	L9
L8	L7 and l4	9	L8
L7	alignment layer with inside surface	60	L7
L6	l4 same inside surface	2	L6
L5	L4 and l3	32	L5
L4	alignment layer with thickness	388	L4
L3	L2 same liquid crystal$	571	L3
L2	surface with tilt angle	3568	L2
L1	de-4100287-$.did.	2	L1

END OF SEARCH HISTORY

C:\STNEXP4\QUERIES\836860.str





chain nodes :
13 14 15 16 17 18
ring nodes :
1 2 3 4 5 6 7 8 9 10 11 12
chain bonds :
2-17 4-16 5-13 9-15 12-18 13-14 13-15
ring bonds :
1-2 1-6 2-3 3-4 4-5 5-6 7-8 7-12 8-9 9-10 10-11 11-12
exact/norm bonds :
2-17 9-15 13-14 13-15
exact bonds :
4-16 5-13 12-18
normalized bonds :
1-2 1-6 2-3 3-4 4-5 5-6 7-8 7-12 8-9 9-10 10-11 11-12

G1:C,H,O

Match level :
1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:Atom 7:Atom 8:Atom 9:Atom 10:Atom 11:Atom
12:Atom 13:CLASS 14:CLASS 15:CLASS 16:CLASS 17:CLASS 18:CLASS

AN 1989:644891 CAPLUS
DN 111:244891
TI The synthesis and transition temperatures of some fluoro-substituted 4-cyanophenyl and 4-cyanobiphenyl-4'-yl 4-pentyl- and 4-butoxybenzoates
AU Gray, G. W.; Hird, M.; Lacey, D.; Toyne, K J.
CS Sch. Chem., Univ. Hull, Hull, HU6 7RX, UK
SO Mol. Cryst. Liq. Cryst. (1989), 172, 165-89
CODEN: MCLCA5; ISSN: 0026-8941
DT Journal
LA English
CC 75-11 (Crystallography and Liquid Crystals)
Section cross-reference(s): 25
AB A series of 4-cyanophenyl 4-X-benzoates and a series of 4-cyanobipenyl-4'-yl 4-X-benzoates (X = pentyl, butoxy) were prepd. without fluoro-substitution and with mono-fluoro to tetra-fluoro-substitution; all possible combinations of substitution patterns at the positions ortho- to the cyano group and ortho- to the carboxylate group were obtained in an attempt to det. the structural features which are responsible for some members of these series showing very large pos. values of dielec. anisotropy. The synthesis of novel precursors required for the prepn. of these esters is described and the m.ps. and transition temps. of the esters are discussed and an explanation is provided for the variation of nematic-isotropic transition temp. with position and extent of fluoro-substitution.
ST fluoro substituted cyanophenyl cyanobiphenyl alkoxybenzoate mesophase; nematic fluoro substituted phenyl biphenyl benzoate
IT **Liquid crystals**
(fluoro-substituted cyanophenyl and cyanobiphenylyl alkoxybenozates, prepn. and properties of)
IT Esterification
(of alkyl and alkoxy benzoic acids and their derivs. with hydroxybenzonitrile and cyanohydroxybiphenyl and their fluoro derivs.)
IT 82380-18-5
RL: RCT (Reactant)
(alkalilation or esterification of)
IT 767-00-0 19812-93-2 26311-45-5
RL: RCT (Reactant)
(esterification of)
IT 5720-07-0P, 4-Methoxyphenylboronic acid
RL: PREP (Preparation)
(prep. and reaction of bromofluorobenzonitrile or bromodifluorobenzonitrile)
IT 121219-25-8P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)
(prepn. and carboxylation of)
IT 123843-65-2P
RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. and conversion of, to nitrile)
IT 123843-67-4P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)
(prepn. and coupling of, with methoxyphenyl boronic acid)
IT 105942-08-3P, 4-Bromo-2-fluorobenzonitrile
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)
(prepn. and coupling of, with pentynylzinc chloride)
IT 121219-23-6P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)
(prepn. and dehydration of)
IT 123843-66-3P 123843-68-5P 123864-93-7P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)
(prepn. and demethylation of)
IT 367-24-8P, 4-Bromo-2-fluoroaniline
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)
(prepn. and diazotisation-cyanation of)
IT 67567-26-4P, 4-Bromo-2,6-difluoroaniline

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)
(prepn. and diazotization-cyanation of)

IT 1498-96-0P 123843-53-8P 123843-54-9P 123843-55-0P 123843-56-1P
123843-57-2P 123843-58-3P 123843-59-4P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)
(prepn. and esterification of)

IT 121219-24-7P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)
(prepn. and hydrogenation of)

IT 123843-60-7P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)
(prepn. and hydrogenation or hydrolysis of)

IT 123843-63-0P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)
(prepn. and hydrolysis of)

IT 49763-64-6P 54887-92-2P 59443-80-0P 59443-82-2P 86786-89-2P
94610-83-0P 123843-69-6P 123843-70-9P 123843-71-0P
123843-72-1P 123843-73-2P 123843-74-3P 123843-75-4P
123843-76-5P 123843-77-6P 123843-78-7P 123843-79-8P 123843-80-1P
123843-81-2P 123843-82-3P 123843-83-4P 123843-84-5P 123843-85-6P
123843-86-7P 123843-87-8P 123843-88-9P 123843-89-0P 123843-90-3P
123843-91-4P 123843-92-5P 123843-93-6P 123843-94-7P 123843-95-8P
123843-96-9P 123843-97-0P 123843-98-1P
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(prepn. and **liq. crystal** properties of)

IT 123843-64-1P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)
(prepn. and lithiation-carboxylation of)

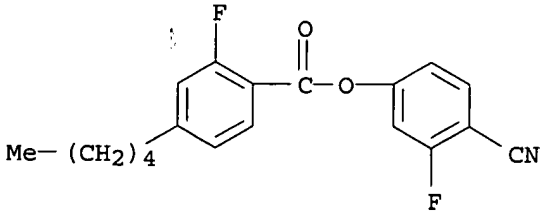
IT 123843-62-9P
RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. of)

IT 123843-61-8
RL: RCT (Reactant)
(prepn.. and hydrolysis of)

IT **123843-72-1P**
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(prepn. and **liq. crystal** properties of)

RN 123843-72-1 CAPLUS

CN Benzoic acid, 2-fluoro-4-pentyl-, 4-cyano-3-fluorophenyl ester (9CI) (CA INDEX NAME)



AN 1990:118462 CAPLUS
DN 112:118462
TI Preparation of laterally fluorinated 4-cyanophenyl and 4'-cyanobiphenyl benzoates as **liquid crystal** materials
IN Gray, George William; Lacey, David; Toyne, Kenneth Johnson; Hird, Michael; McDonnell, Damien Gerard
PA United Kingdom Secretary of State for Defence, London, UK
SO PCT Int. Appl., 42 pp.
CODEN: PIXXD2
DT Patent
LA English
IC ICM C07C121-75
ICS C09K019-20
CC 25-18 (Benzene, Its Derivatives, and Condensed Benzenoid Compounds)
Section cross-reference(s): 75
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 8908102	A1	19890908	WO 1989-GB178	19890221
	W: GB, JP, KR, US				
	RW: AT, BE, CH, DE, FR, GB, IT, LU, NL, SE				
	EP 407438	A1	19910116	EP 1989-904111	19890221
	EP 407438	B1	19950104		
	R: AT, BE, CH, DE, FR, GB, IT, LI, LU, NL, SE				
	JP 03503637	T2	19910815	JP 1989-503580	19890221
	JP 2863235	B2	19990303		
	CA 1332740	A1	19941025	CA 1989-591980	19890224
	GB 2233649	A1	19910116	GB 1990-18359	19900817
	GB 2233649	B2	19911106		
	US 5156763	A	19921020	US 1990-571590	19900830
	US 5334327	A	19940802	US 1992-881670	19920512
PRAI	GB 1988-4330		19880224		
	WO 1989-GB178		19890221		
	US 1990-571590		19900830		

OS MARPAT 112:118462
GI

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

AB The title compds. (I; R = R1, R1O, R1CO2; R1 = C1-12 alkyl; n, m = 0, 1 provided that n + m = 0, 1; a, b, c, d, = 0, 1 with the proviso that a + b + c + d .noteq. 0, excluding the case when a, b, m = 0 and 1 of c, d = 0) were prepd. by esterification of benzoic acids II with cyanophenols III or IV (R2 = H, F; R as above) (prepns. given) by a general method. A soln. of dicyclohexylcarbodiimide in dry CH2Cl2 was added dropwise to a stirred mixt. of II, III or IV, and 4-(N-pyrrolidino)pyridine in CH2Cl2 at room temp. and stirred overnight to give I. I are constituents of **liq**. **cryst**. material mixts. useful for nematic **liq**. **crystal** devices, e.g., electro-optic display. Approx. 30 I were prepd. and **liq**.-**cryst**. properties of 15 I were given.
ST cyanofluorophenylbenzoate prepn nematic **liq crystal**; phenylbenzoate cyanofluoro prepn nematic **liq crystal**; biphenylbenzoate fluorocyano prepn nematic **liq crystal**
IT **Liquid crystals**
(nematic, fluorinated cyanophenylbenzoates)
IT 104-92-7, 4-Bromoanisole 110-62-3, Pentanal
RL: RCT (Reactant)
(Grignard reaction of, in prepn. of nematic **liq**. **crystal**)
IT 5419-55-6, Tri-isopropyl borate
RL: RCT (Reactant)

(Grignard reaction of, with bromoanisole, in prepn. of nematic **liq. crystal**)

IT 461-96-1, 1-Bromo-3,5-difluorobenzene
RL: RCT (Reactant)
(Grignard reaction of, with pentanal, in prepn. of nematic **liq. crystal**)

IT 348-54-9, 2-Fluoroaniline 5509-65-9, 2,6-Difluoroaniline
RL: RCT (Reactant)
(bromination of, in prepn. of nematic **liq. crystal**)

IT 124-38-9, Carbon dioxide, reactions
RL: RCT (Reactant)
(carboxylation by, of difluoroanisole, in prepn. of nematic **liq. crystal**)

IT 93343-10-3, 3,5-Difluoroanisole
RL: RCT (Reactant)
(carboxylation of, in prepn. of nematic **liq. crystal**)

IT 109-65-9, 1-Bromobutane
RL: RCT (Reactant)
(etherification by, of difluorophenol, in prepn. of nematic **liq. crystal**)

IT 99-96-7, reactions 2713-34-0, 3,5-Difluorophenol 82380-18-5, 2-Fluoro-4-hydroxybenzonitrile
RL: RCT (Reactant)
(etherification of, with bromobutane, in prepn. of nematic **liq. crystal**)

IT 367-24-8P, 4-Bromo-2-fluoroaniline 1498-96-0P, 4-Butoxybenzoic acid 5720-07-0P, 4-Methoxyphenylboronic acid 67567-26-4P, 4-Bromo-2,6-difluoroaniline 105942-08-3P, 4-Bromo-2-fluorobenzonitrile 121219-23-6P 121219-24-7P 121219-25-8P 123843-53-8P 123843-54-9P, 4-Butoxy-2-fluorobenzoic acid 123843-55-0P, 2,6-Difluoro-4-pentylbenzoic acid 123843-56-1P 123843-57-2P 123843-58-3P 123843-59-4P 123843-60-7P 123843-61-8P 123843-63-0P 123843-64-1P 123843-65-2P, 2,6-Difluoro-4-methoxybenzoic acid 123843-66-3P 123843-67-4P 123843-68-5P 123864-93-7P 125369-56-4P, 2,6-Difluoro-4-methoxybenzoyl chloride 125369-57-5P 125369-58-6P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation)
(prepn. and reaction of, in prepn. of nematic **liq. crystal**)

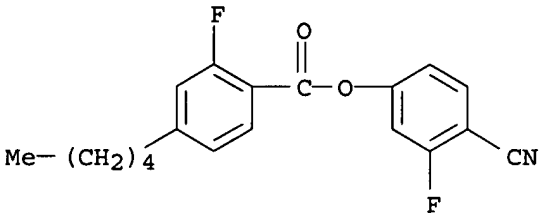
IT 123843-69-6P 123843-70-9P 123843-71-0P **123843-72-1P** 123843-73-2P 123843-74-3P 123843-75-4P 123843-76-5P 123843-77-6P 123843-78-7P 123843-79-8P 123843-80-1P 123843-81-2P 123843-83-4P 123843-84-5P 123843-85-6P 123843-86-7P 123843-87-8P 123843-88-9P 123843-89-0P 123843-90-3P 123843-91-4P 123843-92-5P 123843-93-6P 123843-94-7P 123843-95-8P 123843-96-9P 123843-97-0P 123843-98-1P **125369-59-7P**
RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. of, as nematic **liq. crystal**)

IT 627-19-0, 1-Pentyne
RL: RCT (Reactant)
(substitution by, of bromofluorobenzonitrile, in prepn. of nematic **liq. crystal**)

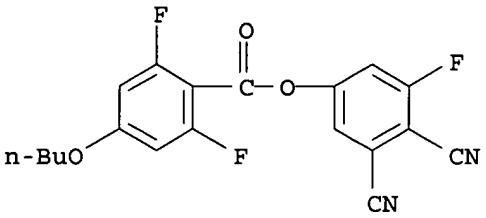
IT **123843-72-1P 125369-59-7P**
RL: SPN (Synthetic preparation); PREP (Preparation)
(prepn. of, as nematic **liq. crystal**)

RN 123843-72-1 CAPLUS

CN Benzoic acid, 2-fluoro-4-pentyl-, 4-cyano-3-fluorophenyl ester (9CI) (CA INDEX NAME)



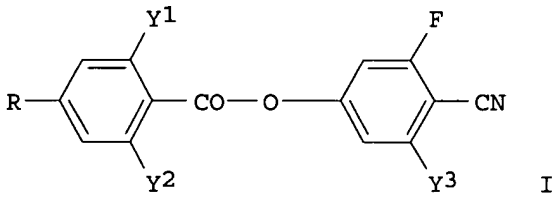
RN 125369-59-7 CAPLUS
CN Benzoic acid, 4-butoxy-2,6-difluoro-, 3,4-dicyano-5-fluorophenyl ester (9CI) (CA INDEX NAME)



AN 1997:540181 CAPLUS
DN 127:154707
TI Nematic **liquid crystal** composition and **liquid crystal** device containing said composition
IN Takeuchi, Kiyobumi; Takatsu, Haruyoshi; Ishida, Tokue
PA Dainippon Ink and Chemicals, Inc., Japan
SO Jpn. Kokai Tokkyo Koho, 14 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM C09K019-46
ICS C09K019-02; G02F001-13
CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 75
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 09157654	A2	19970617	JP 1995-324467	19951213

OS MARPAT 127:154707
GI



I

AB The title compn. contains 5 wt.% to 60 wt.% **liq. crystal** component A and 10 wt.% to 95 wt.% **liq. crystal** component B; said component A contains one or more compds. represented by general formulas, e.g. I [R = alkyl; Y1 - Y3 = H, F; at least one of Y1 - Y3 is F]; said component B contains two or more compds. with permittivity anisotropy -2 to 2. For the title compn., the transition temp. between the nematic and isotropic phases is .gtoreq. 60.degree.C, and the transition temp. between the smectic and nematic phases is .ltoreq. -10.degree.C. The title device shows quick response.

ST nematic **liq crystal** compn; **liq crystal** device quick response

IT **Liquid crystal** displays
(nematic **liq. crystal** compn. and **liq. crystal** device contg. said compn.)

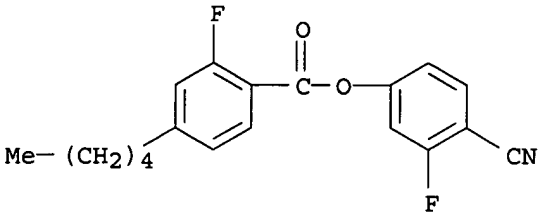
IT 39969-28-3 39969-29-4 40817-08-1 61203-99-4 67589-39-3
67589-41-7 67589-46-2 67589-47-3 67589-52-0 67589-53-1
80944-44-1 84656-75-7 85312-59-0 85583-83-1 91526-01-1
92118-82-6 95480-29-8 95672-34-7 95906-34-6 96184-40-6
96184-42-8 100558-53-0 107949-21-3 107949-31-5 123843-70-9
123843-72-1 123843-73-2 123843-78-7 123843-82-3
129738-34-7 129738-42-7 132123-39-8 133937-72-1 139215-80-8
142400-92-8 149705-67-9 153429-48-2 155041-85-3 155266-68-5
157690-02-3 159586-97-7 160910-17-8 168262-63-3 177572-85-9
183436-87-5 192519-67-8 193275-43-3 193275-57-9 193275-66-0
193275-68-2
RL: TEM (Technical or engineered material use); USES (Uses)
(nematic **liq. crystal** compn. and **liq. crystal** device contg. said compn.)

IT **123843-72-1**
RL: TEM (Technical or engineered material use); USES (Uses)
(nematic **liq. crystal** compn. and **liq.**

crystal device contg. said compn.)

RN 123843-72-1 CAPLUS

CN Benzoic acid, 2-fluoro-4-pentyl-, 4-cyano-3-fluorophenyl ester (9CI) (CA INDEX NAME)



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Search Results - Record(s) 1 through 9 of 9 returned.

☐ 1. Document ID: US 6392736 B1

L48: Entry 1 of 9 File: USPT May 21, 2002

DOCUMENT-IDENTIFIER: US 6392736 B1
TITLE: Method of manufacturing liquid crystal display element

Detailed Description Text (123):
The liquid crystal composition 28 may be used in any one of the modes such as a twisted nematic (TN) mode, a super twisted nematic (STN) mode, a ferroelectric liquid crystal (FLC) mode, an in-plane switching (IPS) mode, a vertical align (VA) mode, an electrically controlled birefringence (ECB) mode, a cholesteric-nematic phase transfer guest-host mode, a polymer-dispersed liquid crystal mode and a cholesteric selective reflection mode.

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw Desc | Image

☐ 2. Document ID: US 6348245 B1

L48: Entry 2 of 9 File: USPT Feb 19, 2002

DOCUMENT-IDENTIFIER: US 6348245 B1
TITLE: Polymide photo alignment film from 3,3',4,4'-benzophenone tetracarboxylic dianhydride and ortho-substituted aromatic diamines for liquid crystal displays

Brief Summary Text (6):
In its simplest form a liquid crystal display device consists of a liquid crystal layer with opposite sides, a set of electrodes on either side of the liquid crystal layer and an alignment layer between each set of electrodes and the liquid crystal layer. The electrodes bearing the alignment layer are supported by substrates typically of glass or plastic. Alignment of the liquid crystal molecules occurs at a certain angle, referred to as the surface tilt angle or simply as the tilt angle, with respect to the plane of the inside of two substrates, e.g. glass plates, plastic sheets, quartz plates or others, which support the electrodes. The inside of the substrates have coatings of sets of transparent electrodes (electrical conductors), usually made of indium-tin oxide (ITO). The sets of electrodes are patterned, e.g. by etching, compatible with the information to be displayed by the LCD and with its driving method. Displays using the TN or the STN effect use electrodes on opposite sides of the liquid crystal layer in order to achieve the predominantly vertical electrical field required for the switching of the liquid crystals in these display modes. The TN effect is e.g. widely exploited in so called active matrix TN displays, which feature electronic active switching elements (e.g. TFTs or diodes) in each pixel. TN-displays are already widely used, for example in monitors for lap-top computers. Another display mode is the in-plane-switching (IPS) mode. Here the electrodes of one pixel are on the same side of the liquid crystal layer and switching is achieved by an essentially horizontal electrical field, i.e. an electrical field which is essentially parallel to the liquid crystal layer. IPS

displays are frequently addressed by a matrix of active elements (typically of TFTs). The process of establishing an alignment layer is most easily carried out by applying the orientation material (an organic polymer) via solution casting (spin coating, roller coating, dipping, spraying, printing and/or doctor blading) onto the substrates. After removal of the solvents and/or curing of the polymer layers, in most conventional displays the substrates are usually rubbed or buffed in one direction with cloths to establish an unique optical direction. After rubbing both substrates, they are rotated from 0 to 360 degrees with respect to each other, adhered together using organic adhesives and often appropriate spacers to preserve a constant thickness to a space or gap between the substrates; and filled with various mixtures of liquid crystal materials. At this stage, polarizing films and/or compensation films are often attached to the outside surfaces of the substrates by a lamination process. Finally, electrical connections are made to both substrates in a manner consistent with the electrical and display designs.

Brief Summary Text (56):
Light polarizer layers are deposited on both outside glass surfaces. The directions of polarization of the two polarizers are adjusted with respect to each other, depending on the specific cell configuration. The polarizer orientations are described, for example, in European Patent 0 131 216, European Patent 0 260 450 and DE 4000451 respectively, while other orientations can also be used. In active matrix addressed TN displays and in IPS displays, the two directions are either substantially perpendicular or substantially parallel to each other. In TN and STN cells the liquid crystals assume a spiral orientation through the thickness of the layer following the alignment of the liquid crystals by the two alignment layers which have directions from substantially 70.degree. to 360.degree. to each other. Twist angles, from 70.degree. to 120.degree. are particularly preferred for TN displays. Twist angles higher than 90.degree. can be obtained by adding a suitable doping component to the liquid crystal mixture. In IPS displays the liquid crystals can either be twisted (e.g. 90.degree.) or untwisted (e.g. 0.degree.) in the starting orientation.

☐ 3. Document ID: US 6146718 A

L48: Entry 3 of 9 File: USPT Nov 14, 2000

DOCUMENT-IDENTIFIER: US 6146718 A
TITLE: Liquid crystalline compound having a negative dielectric anisotropy value, liquid crystal composition containing the liquid crystalline compound, and liquid crystal display element produced utilizing the liquid crystal composition

Brief Summary Text (2):
The present invention relates to a novel liquid crystalline compound exhibiting properties suitable for liquid crystal compositions chiefly used in liquid crystal display elements of, for example, the vertical orientation system or various display systems, such as in-plain switching (IPS), the thin film transistor (TFT), twisted nematic (TN), or super twisted nematic (STN) systems, particularly in the vertical orientation system and the ISP display system; a liquid crystal composition containing such a liquid crystalline compound and having favorable properties; and a liquid display element produced utilizing such a liquid crystal composition. The term "liquid crystalline compound" used herein is a generic term for compounds which exhibit a liquid crystal phase, as well as compounds which do not exhibit a liquid crystal phase but which are useful as the components of liquid crystal compositions.

Brief Summary Text (20):
The object of the present invention is to solve the problems described above, and to

provide a novel liquid crystalline compound, a liquid crystal composition containing the liquid crystalline compound,, and a liquid crystal display element fabricated utilizing the liquid crystal composition, which can be used in a vertical orientation system as described in Japanese Patent Application Laid-open No.2-176625 and in various display systems using compounds or compositions having negative .DELTA..epsilon. values, such as IPS, ECB (HAN or DAP), DS, GH, or PC, as well as for the adjustment of properties of liquid crystal compositions for various display systems using compounds or compositions having positive .DELTA..epsilon. values, such as TN, STN, or AM (TFT or MIM) based on the TN mode.

Brief Summary Text (84):
More specifically, the compounds of the present invention or the liquid crystal compositions prepared from such compounds can be used in various display systems using compounds or compositions having negative .DELTA..epsilon. (for example, the homeotropic orientation system as disclosed in Japanese Patent Application Laid-open No. 2-176625, IPS, ECB (HAN or DAP), DS, GH, or PC), particularly in the homeotropic orientation system as disclosed in Japanese Patent Application Laid-open No. 2-176625 and IPS. Such compounds can be used not only in these systems, but also for improving or adjusting various properties (for example, .DELTA..epsilon., elastic coefficients, .DELTA.n, viscosity, or chemical and physical stability) of liquid crystal compositions for various display systems using compounds or compositions having positive .DELTA..epsilon. (for example, TN, STN, or TN-based AM (TFT or MIM)).

☐ 4. Document ID: US 6139926 A

L48: Entry 4 of 9 File: USPT Oct 31, 2000

DOCUMENT-IDENTIFIER: US 6139926 A
TITLE: Polyimide photo alignment film from 3,3,4,4-benzophenone tetracarboxylic dianhydride and ortho-substituted aromatic diamines for liquid crystal displays

Brief Summary Text (6):
In its simplest form a liquid crystal display device consists of a liquid crystal layer with opposite sides, a set of electrodes on either side of the liquid crystal layer and an alignment layer between each set of electrodes and the liquid crystal layer. The electrodes bearing the alignment layer are supported by substrates typically of glass or plastic. Alignment of the liquid crystal molecules occurs at a certain angle, referred to as the surface tilt angle or simply as the tilt angle, with respect to the plane of the inside of two substrates, e.g. glass plates, plastic sheets, quartz plates or others, which support the electrodes. The inside of the substrates have coatings of sets of transparent electrodes (electrical conductors), usually made of indium-tin oxide (ITO). The sets of electrodes are patterned, e.g. by etching, compatible with the information to be displayed by the LCD and with its driving method. Displays using the TN or the STN effect use electrodes on opposite sides of the liquid crystal layer in order to achieve the predominantly vertical electrical field required for the switching of the liquid crystals in these display modes. The TN effect is e.g. widely exploited in so called active matrix TN displays, which feature electronic active switching elements (e.g. TFTs or diodes) in each pixel. TN-displays are already widely used, for example in monitors for lap-top computers. Another display mode is the in-plane-switching (IPS) mode. Here the electrodes of one pixel are on the same side of the liquid crystal layer and switching is achieved by an essentially horizontal electrical field, i.e. an electrical field which is essentially parallel to the liquid crystal layer. IPS displays are frequently addressed by a matrix of active elements (typically of TFTs). The process of establishing an alignment layer is most easily carried out by applying the orientation material (an organic polymer) via solution casting (spin

coating, roller coating, dipping, spraying, printing and/or doctor blading) onto the substrates. After removal of the solvents and/or curing of the polymer layers, in most conventional displays the substrates are usually rubbed or buffed in one direction with cloths to establish an unique optical direction. After rubbing both substrates, they are rotated from 0 to 360 degrees with respect to each other; adhered together using organic adhesives and often appropriate spacers to preserve a constant thickness to a space or gap between the substrates; and filled with various mixtures of liquid crystal materials. At this stage, polarizing films and/or compensation films are often attached to the outside surfaces of the substrates by a lamination process. Finally, electrical connections are made to both substrates in a manner consistent with the electrical and display designs.

Brief Summary Text (51):
Light polarizer layers are deposited on both outside glass surfaces. The directions of polarization of the two polarizers are adjusted with respect to each other, depending on the specific cell configuration. The polarizer orientations are described, for example, in European Patent 0 131 216, European Patent 0 260 450 and DE 4000451 respectively, while other orientations can also be used. In active matrix addressed TN displays and in IPS displays, the two directions are either substantially perpendicular or substantially parallel to each other. In TN and STN cells the liquid crystals assume a spiral orientation through the thickness of the layer following the alignment of the liquid crystals by the two alignment layers which have directions from substantially 70.degree. to 360.degree. to each other. Twist angles, from 70.degree. to 120.degree. are particularly preferred for TN displays. Twist angles higher than 90.degree. can be obtained by adding a suitable doping component to the liquid crystal mixture. In IPS displays the liquid crystals can either be twisted (e.g. 90.degree.) or untwisted (e.g. 0.degree.) in the starting orientation.

☐ 5. Document ID: JP 2001114722 A

L48: Entry 5 of 9 File: DWPI Apr 24, 2001

DERWENT-ACC-NO: 2002-109026
DERWENT-WEEK: 200215

TITLE: Novel trans-cyclohexane-1, 4-diyl or 1, 4-phenylene liquid crystal-containing compounds for IPS, VA, ECB and GH mode systems

PRIORITY-DATA: 1999JP-0290548 (October 13, 1999)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
JP 2001114722 A	April 24, 2001		042	C07C043/225

INT-CL (IPC): C07 C 43/225; C07 D 213/30; C07 D 237/08; C07 D 239/26; C07 D 309/04; C07 D 309/06; C07 D 319/06; C07 D 405/04; C07 D 407/04; C09 K 19/20; C09 K 19/28; C09 K 19/30; C09 K 19/34; C09 K 19/42; G02 F 1/13

ABSTRACTED-PUB-NO: JP2001114722A
BASIC-ABSTRACT:

NOVELTY - Liquid crystal compounds of formula (I) are new.

DETAILED DESCRIPTION - Liquid crystal compounds of formula (I) are new.

R1, R2 = 1-10C alkyl, in which any given methyelnes are optionally substituted by -O-, -C (=O)-, -HC=CH- or -C equivalent to C- and any given hydrogens are optionally

substituted by halogen;

A, B, C = trans-cyclohexane-1, 4-diyl or 1, 4-phenylene;

Q = O, S, - (CH2)2O- or -O (CH2)2-;

Z1 - Z3 = single bond or 1-4C alkyl;

l, m, n = 0 or 1;

X1 - X4 = H, cyano, trifluoromethyl, trifluoromethoxy, F or Cl.

INDEPENDENT CLAIMS are also included for:

(1) new liquid crystal compositions containing:

(a) (I) as the primary constituent and compounds of formulas (II), (III) and/or (IV) as the secondary constituent;

(b) (I) as the primary constituent and compounds of formulas (V) and/or (VI) as the secondary constituent;

(c) (I) as the primary constituent and compounds of formulas (VII), (VIII) and/or (IX) as the secondary constituent;

(d) (I) as the primary constituent, (II), (III) and/or (IV) as the secondary constituent and (X), (XI) and/or (XII) as the tertiary constituent;

(e) (I) as the primary constituent, (V) and/or (VI) as the secondary constituent and (X), (XI) and/or (XII) as the tertiary constituent;

(f) (I) as the primary constituent, (VII), (VIII) and/or (IX) as the secondary constituent and (X), (XI) and/or (XII) as the tertiary constituent; or

(g) (I) as the primary constituent, (II), (III) and/or (IV) as the secondary constituent, (V) and/or (VI) as the tertiary constituent;

(2) new liquid crystal composition containing the present liquid crystal composition from (a) - (g) and optically active compounds; and

(3) a new liquid crystal display device composed using the present liquid crystal composition.

R3 = 1-10C alkyl optionally substituted;

Y1 = F, Cl, -OCF3-, -OCF2H-, -CF2H-, -CFH2-, -OCF2CF2H-, -OCF2CFHCF3- or -CF3;

L1, L2 = H or F;

Z5, Z6 = -CH2CH2-, - (CH2)4-, -COO-, -CF2O- , -OCF2-, -CH=CH- or single bond;

D = trans-cyclohexane-1, 4-diyl, 1, 3-dioxane-2, 5-diyl or 1, 4-phenylene;

E = trans-cyclohexane-1, 4-diyl or 1, 4-phenylene.

R4, R5 = 1-10C alkyl optionally substituted;

Y2 = -CN or -C equivalent to C-CN;

F = trans-cyclohexane-1, 4-diyl, 1, 3-dioxane-2, 5-diyl, pyrimidine-2, 5-diyl or 1, 4-phenylene;

G = cyclohexane-1, 4-diyl, pyrimidine-2, 5-diyl or 1, 4-phenylene;

H = trans-cyclohexane-1, 4-diyl or 1, 4-phenylene;

Z7 = -CH2CH2-, -COO- or single bond;

L3 - L5 = H or F;

b, c, d = 0 or 1.

R6, R7 = 1-10C alkyl optionally substituted;

I, J = trans-1, 4-cyclohexylene or 1, 4-phenylene;

Z8, Z9 = - (CH2)2-, -COO- or single bond;

L6, L7 = H or F.

R8, R9 = 1-10C alkyl optionally substituted;

K, L, M = trans-1, 4-cyclohexylene, pyrimidine-2, 5-diyl or 1, 4-phenylene;

Z10, Z11 = -C equivalent to C-, -COO-, - (CH2)2-, -CH=CH- or single bond.

USE - Used as liquid crystal composition for IPS, VA, ECB and GH mode systems and for TN, STN and AM systems.

ADVANTAGE - Having extremely high dielectric constant anisotropy and low optical anisotropy simultaneously and being good in compatibility with other liquid crystal materials. As a result, a liquid crystal composition with low threshold voltage and low optical anisotropy is realized.

☐ 6. Document ID: US 6146718 A EP 964048 A1 JP 11349582 A

L48: Entry 6 of 9 File: DWPI Nov 14, 2000

DERWENT-ACC-NO: 2000-055360
DERWENT-WEEK: 200060

TITLE: New liquid crystal compounds having large absolute negative anisotropy value

INVENTOR: HASEBA, Y; MATSUI, S ; MIYAZAWA, K ; TAKEUCHI, H ; YANO, H

PRIORITY-DATA: 1998JP-0178135 (June 10, 1998)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
US 6146718 A	November 14, 2000		000	C09K019/30
EP 964048 A1	December 15, 1999	E	044	C09K019/34
JP 11349582 A	December 21, 1999		034	C07D309/08

INT-CL (IPC): C07 D 309/02; C07 D 309/08; C07 D 309/28; C07 D 309/30; C07 D 315/00; C07 D 407/10; C09 K 19/04; C09 K 19/30; C09 K 19/34; G02 F 1/13

ABSTRACTED-PUB-NO: EP 964048A
BASIC-ABSTRACT:

NOVELTY - Liquid crystalline compounds having a structure comprising 6,6-difluorotetrahydropyran-2,5-diyl, 6,6-difluoro-2,3-dihydro-6H-pyran-2- ,5-diyl and/or 6-fluoro-3,4-dihydro-2H-pyran-2,5-diyl in their skeleton are new.

DETAILED DESCRIPTION - Liquid crystalline compounds of formula (I) are new.

R1(A1-X1)l-(A2-X2)m-(A3-X3)n-(A4-X4)o-(A5)p-Y1 (I)

R1, Y1 = H, halogen, cyano, cyanate, isocyano, isothiocyanate or 1-20C alkyl with nonadjacent methylene groups optionally substituted by O, S, N, C equivalent to C, dialkylsilylene, monoalkylsilylene, silylene or vinylene and with hydrogen atoms optionally substituted by F or Cl;

X1, X2, X3, X4 = single bond, -(CH2)2-, -CH=CH-, -C equivalent to C-, -COO-, -OCO-, -CH2O-, -OCH2-, - (CH2)4-, -(CH2)3O-, -O(CH2)3-, -CH=CHCH2CH2-, -CH2CH=CHCH2-, -CH2CH2CH=CH-, -CH=CHCH=CH-, -CF2O-, -OCF2-, -CH=CHCH2O-, -OCH2CH=CH-, -CF=CF-, -CH2CF2-, -CF2CH2-, -(CF2)2-, -(CF2)4-, - (CH2)2COO-, -OCO(CH2)2-, -CH=CHCOO-, -OCOCH=CH-, -CH=CH-C equivalent to C- or -C equivalent to C-CH=CH-;

rings A1, A2, A3, A4 = trans-cyclohexane-1,4-diyl, cyclohexa-1-ene-1,4-diyl, 1,4-phenylene, bicyclo(1.1.1)pentane-1,3-diyl, 6,6-difluorotetrahydropyran-2,5-diyl, 6,6-difluoro-2,3-dihydro-6H-pyran-2- ,5-diyl or 6-fluoro-3,4-dihydro-2H-pyran-2,5-diyl with ring C atoms optionally substituted by N, O or S and with H atoms on the ring optionally substituted by halogen or cyano, provided that at least one of

the rings is one of the pyranyl systems; and

l, m, n, o, p = 0 or 1, provided that l + m + n + o + p at least 1.

Any atom may be substituted by its isotope.

INDEPENDENT CLAIMS are included for liquid crystal compositions containing (I) and display elements utilizing these compositions.

USE - (I) are used in liquid crystal compositions (claimed). The compositions may be used to fabricate liquid crystal display elements (claimed) of, for example, the vertical orientation system or various display systems such as in-plain switching (IPS), thin film transistor (TFT), twisted nematic (TN) or super twisted nematic (STN) systems.

ADVANTAGE - The liquid crystalline compounds have low viscosity, a large absolute value of negative dielectric anisotropy, controlled optical anisotropy value, high specific resistance, high voltage holding ratio and high stability against heat and ultraviolet radiation. They are highly miscible with other liquid crystalline compounds and readily form liquid crystal compositions of negative anisotropy with a wide range of such compounds.
ABSTRACTED-PUB-NO:

US 6146718A EQUIVALENT-ABSTRACTS:

NOVELTY - Liquid crystalline compounds having a structure comprising 6,6-difluorotetrahydropyran-2,5-diyl, 6,6-difluoro-2,3-dihydro-6H-pyran-2- ,5-diyl and/or 6-fluoro-3,4-dihydro-2H-pyran-2,5-diyl in their skeleton are new.

DETAILED DESCRIPTION - Liquid crystalline compounds of formula (I) are new.

R1(A1-X1)l-(A2-X2)m-(A3-X3)n-(A4-X4)o-(A5)p-Y1 (I)

R1, Y1 = H, halogen, cyano, cyanate, isocyano, isothiocyanate or 1-20C alkyl with nonadjacent methylene groups optionally substituted by O, S, N, C equivalent to C, dialkylsilylene, monoalkylsilylene, silylene or vinylene and with hydrogen atoms optionally substituted by F or Cl;

X1, X2, X3, X4 = single bond, -(CH2)2-, -CH=CH-, -C equivalent to C-, -COO-, -OCO-, -CH2O-, -OCH2-, - (CH2)4-, -(CH2)3O-, -O(CH2)3-, -CH=CHCH2CH2-, -CH2CH=CHCH2-, -CH2CH2CH=CH-, -CH=CHCH=CH-, -CF2O-, -OCF2-, -CH=CHCH2O-, -OCH2CH=CH-, -CF=CF-, -CH2CF2-, -CF2CH2-, -(CF2)2-, -(CF2)4-, - (CH2)2COO-, -OCO(CH2)2-, -CH=CHCOO-, -OCOCH=CH-, -CH=CH-C equivalent to C- or -C equivalent to C-CH=CH-;

rings A1, A2, A3, A4 = trans-cyclohexane-1,4-diyl, cyclohexa-1-ene-1,4-diyl, 1,4-phenylene, bicyclo(1.1.1)pentane-1,3-diyl, 6,6-difluorotetrahydropyran-2,5-diyl, 6,6-difluoro-2,3-dihydro-6H-pyran-2- ,5-diyl or 6-fluoro-3,4-dihydro-2H-pyran-2,5-diyl with ring C atoms optionally substituted by N, O or S and with H atoms on the ring optionally substituted by halogen or cyano, provided that at least one of the rings is one of the pyranyl systems; and

l, m, n, o, p = 0 or 1, provided that l + m + n + o + p at least 1.

Any atom may be substituted by its isotope.

INDEPENDENT CLAIMS are included for liquid crystal compositions containing (I) and display elements utilizing these compositions.

USE - (I) are used in liquid crystal compositions (claimed). The compositions may be used to fabricate liquid crystal display elements (claimed) of, for example, the vertical orientation system or various display systems such as in-plain switching (IPS), thin film transistor (TFT), twisted nematic (TN) or super twisted nematic (STN) systems.

ADVANTAGE - The liquid crystalline compounds have low viscosity, a large absolute value of negative dielectric anisotropy, controlled optical anisotropy value, high specific resistance, high voltage holding ratio and high stability against heat and ultraviolet radiation. They are highly miscible with other liquid crystalline compounds and readily form liquid crystal compositions of negative anisotropy with a wide range of such compounds.

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments

KWIC | Draw Desc | Clip Img | Image

☐ 7. Document ID: US 20020084444 A1 GB 2334031 A DE 19903746 A1 JP 11302652 A KR 99072364 A US 6139925 A

L48: Entry 7 of 9 File: DWPI Jul 4, 2002

DERWENT-ACC-NO: 1999-432471
DERWENT-WEEK: 200247

TITLE: Liquid-crystal mixture used in the adjustment of the resistance of liquid crystal compositions

INVENTOR: DARIUS, M; HECKMEIER, M ; KIRSCH, P ; REIFFENRATH, V ; REUTER, M ; RIEGER, B ; TARUMI, K ; REIGER, B

PRIORITY-DATA: 1998DE-1051805 (November 11, 1998), 1998DE-1004300 (February 4, 1998), 1998DE-1005912 (February 13, 1998), 1999DE-1002606 (January 23, 1999)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
US 20020084444 A1	July 4, 2002		000	C09K019/12
GB 2334031 A	August 11, 1999		078	C07C255/53
DE 19903746 A1	August 5, 1999		000	C07C039/367
JP 11302652 A	November 2, 1999		030	C09K019/42
KR 99072364 A	September 27, 1999		000	C09K019/02
US 6139925 A	October 31, 2000		000	C09K019/00

INT-CL (IPC): C07 C 25/13; C07 C 39/367; C07 C 39/42; C07 C 255/50; C07 C 255/53; C07 C 255/55; C09 K 19/00; C09 K 19/02 ; C09 K 19/08; C09 K 19/12; C09 K 19/30; C09 K 19/34; C09 K 19/42; C09 K 19/46; C09 K 19/52; G02 F 1/13; G09 F 9/35

ABSTRACTED-PUB-NO: GB 2334031A
BASIC-ABSTRACT:

NOVELTY - The liquid-crystal mixture has a certain specific resistance and comprises an acidic compound.

DETAILED DESCRIPTION - A liquid-crystal mixture has a certain specific resistance and comprises an acidic compound in a concentration of 10 ppm to less than 10%.

An INDEPENDENT CLAIM is also included for a method of adjusting the specific resistance of the liquid-crystal mixture comprising adding an acidic compound.

USE - The liquid-crystal mixture is used in STN, AMD, TN or IPS liquid crystal displays.

ADVANTAGE - The liquid-crystal displays have prespecified specific resistance values and the specific resistance of the liquid-crystals can be adjusted reproducibly.
ABSTRACTED-PUB-NO:

US 6139925A EQUIVALENT-ABSTRACTS:

NOVELTY - The liquid-crystal mixture has a certain specific resistance and comprises an acidic compound.

DETAILED DESCRIPTION - A liquid-crystal mixture has a certain specific resistance and comprises an acidic compound in a concentration of 10 ppm to less than 10%.

An INDEPENDENT CLAIM is also included for a method of adjusting the specific resistance of the liquid-crystal mixture comprising adding an acidic compound.

USE - The liquid-crystal mixture is used in STN, AMD, TN or IPS liquid crystal displays.

ADVANTAGE - The liquid-crystal displays have prespecified specific resistance values and the specific resistance of the liquid-crystals can be adjusted reproducibly.

US20020084444A

NOVELTY - The liquid-crystal mixture has a certain specific resistance and comprises an acidic compound.

DETAILED DESCRIPTION - A liquid-crystal mixture has a certain specific resistance and comprises an acidic compound in a concentration of 10 ppm to less than 10%.

An INDEPENDENT CLAIM is also included for a method of adjusting the specific resistance of the liquid-crystal mixture comprising adding an acidic compound.

USE - The liquid-crystal mixture is used in STN, AMD, TN or IPS liquid crystal displays.

ADVANTAGE - The liquid-crystal displays have prespecified specific resistance values and the specific resistance of the liquid-crystals can be adjusted reproducibly.

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC | Draw Desc | Image

☐ 8. Document ID: WO 9921815 A1 EP 1026142 A1

L48: Entry 8 of 9 File: DWPI May 6, 1999

DERWENT-ACC-NO: 1999-326669
DERWENT-WEEK: 200171

TITLE: Novel 2,3-diflurophenyl derivatives

INVENTOR: MIYAZAWA, K; NAKAGAWA, E ; TAKESHITA, F ; TAKEUCHI, H ; YAGI, Y ; YAGI, H

PRIORITY-DATA: 1997JP-0309919 (October 24, 1997)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
WO 9921815 A1	May 6, 1999	J	087	C07C043/225
EP 1026142 A1	August 9, 2000	E	000	C07C043/225

INT-CL (IPC): C07 C 25/18; C07 C 43/225; C07 C 69/74; C07 C 69/76; C07 D 309/06; C07 D 319/06; C09 K 19/10; C09 K 19/20 ; C09 K 19/30; C09 K 19/34; C09 K 19/42; G02 F 1/13

ABSTRACTED-PUB-NO: WO 9921815A
BASIC-ABSTRACT:

NOVELTY - 2,3-diflurophenyl derivatives (I) are new.

DETAILED DESCRIPTION - 2,3-diflurophenyl derivatives of formula (I) are new.

Ra, Rb = 1-10C alkyl or alkoxy (any methylene may be substituted by -O-, -CH=CH- or -C equivalent to C, provided there is no neighbouring -O-, and at least one methylene is substituted by cyclopropane-1,2-diyl, -CF2- or -CFH-); A1-A4 = cyclohexane-1,4-diyl or 1,4-phenylene (non-adjacent methylene may be substituted by -O-; H may be substituted by halogen; A3 and/or A4 = 2,3-difluoro-1,4-phenylene); Z1, Z2, Z3 = single bond, -(CH2)p, -CO2-, -CF2O- or -CH2O-; m, n = 0 or 1.

USE - For liquid crystal compositions (claimed) for liquid crystal display elements (claimed); used as components for IPS (iso-plane switching) and VA (vertical orientation) methods, ECB (birefringence control) and GH (guest-host) modes, and for TN (twisted nematic), STN (super-twisted nematic) and AM (active nematic) modes.

ADVANTAGE - The compounds have excellent compatibility even at low temperatures, and combine an extremely large negative permitivity anisotropy with a small optical anisotropy.

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | KWIC | Draw Desc | Clip Img | Image

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☐ 9. Document ID: US 20020030179 A1 WO 9921816 A1 EP 1026143 A1 US 6348244 B1

L48: Entry 9 of 9 File: DWPI Mar 14, 2002

DERWENT-ACC-NO: 1999-312917
DERWENT-WEEK: 200222

TITLE: Novel liquid crystal compounds for displays

INVENTOR: KUBO, Y; MIYAZAWA, K ; NAKAGAWA, E ; TAKESHITA, F ; TAKEUCHI, H

PRIORITY-DATA: 1997JP-0309918 (October 24, 1997)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
US 20020030179 A1	March 14, 2002		000	C09K019/52
WO 9921816 A1	May 6, 1999	J	076	C07C043/225
EP 1026143 A1	August 9, 2000	E	000	C07C043/225
US 6348244 B1	February 19, 2002		000	C09K019/34

INT-CL (IPC): C07 C 25/18; C07 C 43/225; C07 C 309/06; C07 C 319/06; C07 D 309/06; C07 D 319/06; C09 K 19/30; C09 K 19/34; C09 K 19/42; C09 K 19/52; G02 F 1/13

ABSTRACTED-PUB-NO: US 6348244B
BASIC-ABSTRACT:

NOVELTY - Liquid crystal compounds (I) are new.

DETAILED DESCRIPTION - Liquid-crystal compounds of formula (I) are new.

Ra, Rb = 1-10C linear or branched alkyl (any methylene may be substituted by -O-, -CH=CH- or -C equivalent to C, provided there are no neighboring -O- groups); A1 = cyclohexane-1,4-diyl (non-adjacent methylenes may be substituted by -O-); A2 = 2,3-difluoro-1,4-phenylene (H at 5- and 6- positions may be substituted by F); Z1, Z2 = single bond or -CH2CH2-;Xa, Xb, Xc, Xd = H, F or Cl (at least one = F or Cl).

USE - For liquid crystal compositions (claimed) for liquid crystal display elements (claimed), used as components for IPS (iso-plane switching) and VA (vertical orientation) methods, ECB (birefringence control) and GH (guest-host) modes, and for TN (twisted nematic), STN (super-twisted nematic) and AM (active nematic) methods.

ADVANTAGE - The compounds combine an extremely large negative permitivity anisotropy with a small optical anisotropy.
ABSTRACTED-PUB-NO:

US20020030179A EQUIVALENT-ABSTRACTS:

NOVELTY - Liquid crystal compounds (I) are new.

DETAILED DESCRIPTION - Liquid-crystal compounds of formula (I) are new.

Ra, Rb = 1-10C linear or branched alkyl (any methylene may be substituted by -O-, -CH=CH- or -C equivalent to C, provided there are no neighboring -O- groups); A1 = cyclohexane-1,4-diyl (non-adjacent methylenes may be substituted by -O-); A2 = 2,3-difluoro-1,4-phenylene (H at 5- and 6- positions may be substituted by F); Z1, Z2 = single bond or -CH2CH2-;Xa, Xb, Xc, Xd = H, F or Cl (at least one = F or Cl).

USE - For liquid crystal compositions (claimed) for liquid crystal display elements (claimed), used as components for IPS (iso-plane switching) and VA (vertical orientation) methods, ECB (birefringence control) and GH (guest-host) modes, and for TN (twisted nematic), STN (super-twisted nematic) and AM (active nematic) methods.

ADVANTAGE - The compounds combine an extremely large negative permitivity anisotropy with a small optical anisotropy.

NOVELTY - Liquid crystal compounds (I) are new.

DETAILED DESCRIPTION - Liquid-crystal compounds of formula (I) are new.

Ra, Rb = 1-10C linear or branched alkyl (any methylene may be substituted by -O-, -CH=CH- or -C equivalent to C, provided there are no neighboring -O- groups); A1 = cyclohexane-1,4-diyl (non-adjacent methylenes may be substituted by -O-); A2 = 2,3-difluoro-1,4-phenylene (H at 5- and 6- positions may be substituted by F); Z1, Z2 = single bond or -CH2CH2-;Xa, Xb, Xc, Xd = H, F or Cl (at least one = F or Cl).

USE - For liquid crystal compositions (claimed) for liquid crystal display elements (claimed), used as components for IPS (iso-plane switching) and VA (vertical orientation) methods, ECB (birefringence control) and GH (guest-host) modes, and for

TN (twisted nematic), STN (super-twisted nematic) and AM (active nematic) methods.

ADVANTAGE - The compounds combine an extremely large negative permitivity anisotropy with a small optical anisotropy.

WO 9921816A

Term	Documents
LIQUID.DWPI,TDBD,EPAB,JPAB,USPT.	1769778
LIQ.DWPI,TDBD,EPAB,JPAB,USPT.	309655
LIQS.DWPI,TDBD,EPAB,JPAB,USPT.	11227
LIQUIDS.DWPI,TDBD,EPAB,JPAB,USPT.	220627
CRYSTAL.DWPI,TDBD,EPAB,JPAB,USPT.	622641
CRYSTALS.DWPI,TDBD,EPAB,JPAB,USPT.	181683
MATERIAL.DWPI,TDBD,EPAB,JPAB,USPT.	4400161
MATERIALS.DWPI,TDBD,EPAB,JPAB,USPT.	1643558
MIXTURE.DWPI,TDBD,EPAB,JPAB,USPT.	1254358
MIXT.DWPI,TDBD,EPAB,JPAB,USPT.	394615
(L47 SAME (LIQUID CRYSTAL MATERIAL OR LIQUID CRYSTAL MIXTURE OR LIQUID RYSTAL MEDIUM OR LIQUID CRYSTAL COMPOSITION) SAME (SUITABLE OR USEFUL OR USED)).USPT,JPAB,EPAB,DWPI,TDBD.	9

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L39: Entry 4 of 5 File: DWPI Jun 17, 1997

DERWENT-ACC-NO: 1997-369777
DERWENT-WEEK: 199734

TITLE: Nematic liquid crystal compositions for display devices having higher response speed - containing fluorine and cyano group substituted aromatic esters

PRIORITY-DATA: 1995JP-0324467 (December 13, 1995)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
JP 09157654 A	June 17, 1997		014	C09K019/46

INT-CL (IPC): C09 K 19/02; C09 K 19/46; G02 F 1/13

ABSTRACTED-PUB-NO: JP09157654A
BASIC-ABSTRACT:

A nematic liquid crystal composition with a nematic-to-isotropic liquid crystal phase transition temperature (Tn-i) of at least 60 degrees C and a crystal-or-smectic-to-nematic phase transition temperature (T-n) of up to -10 degrees C consists of 3-40 compounds and containing 5-60wt.% of liquid crystal component (A) made up of at least one compound of formulae (I-1) and (I-2) (R11 and R12 = 2-5C alkyl; Y11-Y16 = H or F) and 10-95wt.% of liquid crystal component(B) made up of at least two compounds with an anisotrophy of dielectric constant(de lta epsilon) of -2 to +2. Also claimed are twisted nematic(TN) and super twisted nematic(STN) liquid crystal display devices using the nematic liquid crystal compositions.

ADVANTAGE - (I-1) and (I-2) even in a small amount can give nematic liquid crystal compositions with higher response speed and improved flickering and crosstalk phenomenon capable of driving at a low temperature and/or on low voltage. the liquid crystal composition with a large double refraction among the nematic liquid crystal compositions can reduce the liquid crystal layer thickness and thus improve response. TN and STN liquid crystal display devices have excellent driving and display properties even with a large amount of information.

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L48: Entry 9 of 9 File: DWPI Mar 14, 2002

DERWENT-ACC-NO: 1999-312917
DERWENT-WEEK: 200222

TITLE: Novel liquid crystal compounds for displays

INVENTOR: KUBO, Y; MIYAZAWA, K ; NAKAGAWA, E ; TAKESHITA, F ; TAKEUCHI, H

PRIORITY-DATA: 1997JP-0309918 (October 24, 1997)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
US 20020030179 A1	March 14, 2002		000	C09K019/52
WO 9921816 A1	May 6, 1999	J	076	C07C043/225
EP 1026143 A1	August 9, 2000	E	000	C07C043/225
US 6348244 B1	February 19, 2002		000	C09K019/34

INT-CL (IPC): C07 C 25/18; C07 C 43/225; C07 C 309/06; C07 C 319/06; C07 D 309/06; C07 D 319/06; C09 K 19/30; C09 K 19/34; C09 K 19/42; C09 K 19/52; G02 F 1/13

ABSTRACTED-PUB-NO: US 6348244B
BASIC-ABSTRACT:

NOVELTY - Liquid crystal compounds (I) are new.

DETAILED DESCRIPTION - Liquid-crystal compounds of formula (I) are new.

Ra, Rb = 1-10C linear or branched alkyl (any methylene may be substituted by -O-, -CH=CH- or -C equivalent to C, provided there are no neighboring -O- groups); A1 = cyclohexane-1,4-diyl (non-adjacent methylenes may be substituted by -O-); A2 = 2,3-difluoro-1,4-phenylene (H at 5- and 6- positions may be substituted by F); Z1, Z2 = single bond or -CH2CH2-;Xa, Xb, Xc, Xd = H, F or Cl (at least one = F or Cl).

USE - For liquid crystal compositions (claimed) for liquid crystal display elements (claimed), used as components for IPS (iso-plane switching) and VA (vertical orientation) methods, ECB (birefringence control) and GH (guest-host) modes, and for TN (twisted nematic), STN (super-twisted nematic) and AM (active nematic) methods.

ADVANTAGE - The compounds combine an extremely large negative permitivity anisotropy with a small optical anisotropy.
ABSTRACTED-PUB-NO:

US20020030179A EQUIVALENT-ABSTRACTS:

NOVELTY - Liquid crystal compounds (I) are new.

DETAILED DESCRIPTION - Liquid-crystal compounds of formula (I) are new.

Ra, Rb = 1-10C linear or branched alkyl (any methylene may be substituted by -O-, -CH=CH- or -C equivalent to C, provided there are no neighboring -O- groups); A1 = cyclohexane-1,4-diyl (non-adjacent methylenes may be substituted by -O-); A2 = 2,3-difluoro-1,4-phenylene (H at 5- and 6- positions may be substituted by F); Z1, Z2 = single bond or -CH2CH2-;Xa, Xb, Xc, Xd = H, F or Cl (at least one = F or Cl).

USE - For liquid crystal compositions (claimed) for liquid crystal display elements (claimed), used as components for IPS (iso-plane switching) and VA (vertical

orientation) methods, ECB (birefringence control) and GH (guest-host) modes, and for TN (twisted nematic), STN (super-twisted nematic) and AM (active nematic) methods.

ADVANTAGE - The compounds combine an extremely large negative permitivity anisotropy with a small optical anisotropy.

NOVELTY - Liquid crystal compounds (I) are new.

DETAILED DESCRIPTION - Liquid-crystal compounds of formula (I) are new.

Ra, Rb = 1-10C linear or branched alkyl (any methylene may be substituted by -O-, -CH=CH- or -C equivalent to C, provided there are no neighboring -O- groups); A1 = cyclohexane-1,4-diyl (non-adjacent methylenes may be substituted by -O-); A2 = 2,3-difluoro-1,4-phenylene (H at 5- and 6- positions may be substituted by F); Z1, Z2 = single bond or -CH2CH2-;Xa, Xb, Xc, Xd = H, F or Cl (at least one = F or Cl).

USE - For liquid crystal compositions (claimed) for liquid crystal display elements (claimed), used as components for IPS (iso-plane switching) and VA (vertical orientation) methods, ECB (birefringence control) and GH (guest-host) modes, and for TN (twisted nematic), STN (super-twisted nematic) and AM (active nematic) methods.

ADVANTAGE - The compounds combine an extremely large negative permitivity anisotropy with a small optical anisotropy.

WO 9921816A

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L48: Entry 8 of 9 File: DWPI May 6, 1999

DERWENT-ACC-NO: 1999-326669
DERWENT-WEEK: 200171

TITLE: Novel 2,3-diflurophenyl derivatives

INVENTOR: MIYAZAWA, K; NAKAGAWA, E ; TAKESHITA, F ; TAKEUCHI, H ; YAGI, Y ; YAGI, H

PRIORITY-DATA: 1997JP-0309919 (October 24, 1997)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
WO 9921815 A1	May 6, 1999	J	087	C07C043/225
EP 1026142 A1	August 9, 2000	E	000	C07C043/225

INT-CL (IPC): C07 C 25/18; C07 C 43/225; C07 C 69/74; C07 C 69/76; C07 D 309/06; C07 D 319/06; C09 K 19/10; C09 K 19/20 ; C09 K 19/30; C09 K 19/34; C09 K 19/42; G02 F 1/13

ABSTRACTED-PUB-NO: WO 9921815A
BASIC-ABSTRACT:

NOVELTY - 2,3-diflurophenyl derivatives (I) are new.

DETAILED DESCRIPTION - 2,3-diflurophenyl derivatives of formula (I) are new.

Ra, Rb = 1-10C alkyl or alkoxy (any methylene may be substituted by -O-, -CH=CH- or -C equivalent to C, provided there is no neighbouring -O-, and at least one methylene is substituted by cyclopropane-1,2-diyl, -CF2- or -CFH-); A1-A4 = cyclohexane-1,4-diyl or 1,4-phenylene (non-adjacent methylene may be substituted by -O-; H may be substituted by halogen; A3 and/or A4 = 2,3-difluoro-1,4-phenylene); Z1, Z2, Z3 = single bond, -(CH2)p, -CO2-, -CF2O- or -CH2O-; m, n = 0 or 1.

USE - For liquid crystal compositions (claimed) for liquid crystal display elements (claimed); used as components for IPS (iso-plane switching) and VA (vertical orientation) methods, ECB (birefringence control) and GH (guest-host) modes, and for TN (twisted nematic), STN (super-twisted nematic) and AM (active nematic) modes.

ADVANTAGE - The compounds have excellent compatibility even at low temperatures, and combine an extremely large negative permitivity anisotropy with a small optical anisotropy.

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L39: Entry 3 of 5 File: JPAB Jun 17, 1997

PUB-NO: JP409157654A
DOCUMENT-IDENTIFIER: JP 09157654 A
TITLE: NEMATIC LIQUID CRYSTAL COMPOSITION AND LIQUID CRYSTAL DISPLAY DEVICE USING THE SAME

PUBN-DATE: June 17, 1997

INVENTOR-INFORMATION:
NAME COUNTRY
TAKEUCHI, KIYOBUMI
TAKATSU, HARUYOSHI
ISHIDA, TOKUE

INT-CL (IPC): C09 K 19/46; C09 K 19/02; G02 F 1/13

ABSTRACT:

PROBLEM TO BE SOLVED: To obtain a nematic liquid crystal composition having a prescribed phase transition temperature, comprising a mixture of specific liquid crystal components, useful as a liquid crystal display device drivable at a low temperature/low voltage by addition of a small amount, excellent in high-speed responsiveness, improved in flicker of display screen and cross talk phenomena.

SOLUTION: This composition comprises 3-40 kinds of compounds and is composed of (A) 5-60wt.% of a liquid crystal component consisting of one or more selected from among a compound of formula I (R11 is a 2-5C straight-chain alkyl; Y11 to Y13 are each H or F and one or more of Y11 to Y13 are F) and a compound of formula II (R12 is R11; Y14 to Y16 are each as shown for Y11 to Y13) and (B) 10-95wt.% of a liquid crystal component consisting of two or more compounds having -2 to 2 dielectric anisotropy (Δε) [e.g. a compound of formula III (R21 is a 2-7C straight-chain alkyl, etc.; R24 is a 1-7C straight-chain alkyl, etc.; Z21 and Z22 are each a single bond, ethylene, etc.; (m) is 0 or 1)]. The composition has ≥60°C nematic phase-isotropic liquid phase transition temperature and ≤-10°C smectic phase-nematic phase transition temperature.

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